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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,265	06/18/2001	Shunpei Yamazaki	740756-002324	7902

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EXAMINER
TRAN, THIEN F

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/882,265	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Thien Tran	2811	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-52 is/are pending in the application.

4a) Of the above claim(s) 15-28 and 43-52 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 and 29-42 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-14 and 29-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al. (USPN 6,087,679).

Yamazaki et al. discloses the claimed semiconductor device (Figs. 5A-6D, 7 and 16A-16C) having a thin film transistor formed of a crystalline semiconductor film that contains silicon as its main ingredient and germanium (col. 18, lines 45-55; col. 22, lines 1-60), wherein the crystalline semiconductor film has a channel formation region and an impurity region that is doped with an impurity of one type of conductivity; and the channel formation region contains less than 5×10^{18} nitrogen atoms per cm^3, less than 5×10^{18} carbon atoms per cm^3, and less than 1×10^{19} oxygen atoms per cm^3 (col. 4, lines 25-41 and col. 8, lines 3-16). Yamazaki et al. using the specific material as claimed, silicon containing 1-10% of germanium for the channel formation region; therefore, it is inherent that 20% or more of the channel formation region is the {101} lattice plane that forms an angle of equal to or less than 10 degree with respect to the

surface of the crystalline semiconductor film; 3% or less of the channel formation region is the {001} lattice plane that forms an angle of equal to or less than 10 degree with respect to the surface of the crystalline semiconductor film; and 5% or less of the channel formation region is the {111} lattice plane that forms an angle of equal to or less than 10 degree with respect to the surface of the crystalline semiconductor film.

Regarding claims 2, 9, 30 and 37, the channel formation region contains the metal element in a concentration of less than 2×10^{17} atoms per cm^3.

Regarding claims 3, 10, 31 and 38, the metal element is nickel (Ni).

Regarding claims 4, 11, 32 and 39, the crystalline semiconductor film contains germanium at 1 to 10 atomic percent.

Regarding claims 5, 12, 33 and 40, the crystalline semiconductor film has a claimed thickness.

Regarding claims 6, 13, 34 and 41, it is inherent that the spacing in the lattice plane that is horizontal to the surface of the crystalline semiconductor film is different from the spacing in the lattice plane inclined 60 degree with respect to the surface of the crystalline semiconductor film, and the difference is more than 0 and equal to or less than 0.002 nm in terms of lattice constant.

Regarding claims 7, 14, 35 and 42, the semiconductor device is a video camera.

Regarding claim 8, the device is subjected to heat treatment and laser treatment.

Regarding claims 29 and 36, Yamazaki et al. discloses the device (Fig. 7) comprising pixel portion and driver circuit formed on a same insulator, wherein the

driver circuit is composed of an n-channel thin film transistor and a p-channel thin film transistor; and the pixel portion is composed of thin film transistors.

Response to Arguments

Applicant's arguments filed 05-12-2003 have been fully considered but they are not persuasive. Applicant argues that Yamazaki does not teach or suggest an amorphous silicon containing germanium at 1-10%. The examiner respectfully disagrees with the remark. Fig. 16C and col. 18 and 22 of Yamazaki clearly teach crystal silicon film 45 containing germanium at 1-10% being formed from an amorphous silicon film 42.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thien Tran whose telephone number is (703) 308-4108. The examiner can normally be reached on 8:30AM - 5:00PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

tt
June 26, 2003

Thien Tran
Patent Examiner
Technology Center 2800